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Inside Wallops

Wallops Participating in a Study of Cloud Ice Crystals

Studies of cirrus clouds by some 450 scientists may lead to improved forecasts of future climate change.

During July, scientists from NASA's Goddard Space Flight Center, (GSFC), joined others in southern Florida to investigate high tropical cirrus clouds composed of tiny ice crystals. The researchers hope to determine how the clouds form, how they limit the amount of sunlight reaching the surface of the Earth and how they trap heat rising from the surface and lower atmosphere. This key information will help improve computer programs that forecast global climate change.



Cirrus Clouds and a Sun Dog

"Our objective is to find out how ice clouds affect global warming," said Eric Jensen, project mission scientist at NASA Ames Research Center. "The combination of measurements and computer modeling studies will improve our understanding of how cirrus (clouds) may change in response to climate change," he said.

High, tropical cirrus clouds are composed of tiny ice crystals that float at altitudes from 20,000 feet (6,096 meters) to 60,000 feet (18,288 meters). Scientists will take measurements from a variety of aircraft and ground instruments for four to six weeks.

The Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment (CRYSTAL-FACE) includes researchers from various NASA centers including Ames, Goddard, Wallops Flight Facility, Langley Research Center and the Jet Propulsion Laboratory. Other participating researchers are from the National Oceanic and Atmospheric Administration, the National Center for Atmospheric Research, Boulder, Colo., and various universities and companies.

Dr. John Gerlach, NASA GSFC Wallops Flight Facility, Observational Science Branch, and students in the Goddard Coastal Research Graduate Fellowship Program are supporting the

Crystal Face mission with the NASA Polarimetric radar (NPOL).

According to Gerlach, "Our mission is to collect data on convective systems that generate the cirrus cloud systems being studied by the airplanes and to actually provide direction to the airplanes by identifying areas of scientific interest. NPOL is used as an operations center."

Using NPOL data along with satellite images Dr. David Starr, NASA GSFC (Greenbelt), Laboratory for Atmospheres, chooses the flight lines for the six airplanes involved. NPOL data will be very useful not only in providing life cycle information of convection storms but also in microphysical identification of hydrometers within the clouds.

Many of the scientists and aircraft involved in CRYSTAL-FACE will be based at Key West Naval Air Facility, Fla.. Six aircraft will carry instruments to measure cirrus clouds. The high-flying ER-2, based at NASA Dryden Flight Research Center will conduct remote sensing of cirrus clouds and environmental conditions, as will the Proteus aircraft, built by Scaled Composites, Mojave, Calif. Scientists will compare the ER-2 instrument readings with similar satellite measurements.

NASA's WB-57 aircraft based at Johnson Space Center will be making in situ measurements of cirrus clouds and environmental conditions. A Citation aircraft from the University of North Dakota will make in situ measurements in the lower parts of cirrus 'anvils.' An anvil is an extensive ice cloud that forms at the tops of deep thunderstorm clouds.

A Naval Research Laboratory P-3 aircraft, based at the Naval Air Station, Patuxent River, Md., will use airborne radar to measure cloud structure and intensity. A Twin Otter airplane from the Center for Interdisciplinary Remotely Piloted Aircraft Studies, based at the Navy Airport near Fort Ord, Calif., will make in situ measurements of aerosols and take other readings. Ground-based instruments include radar and other instruments. Satellites included in the study will be GOES, Terra, Tropical Rainfall Measuring Mission and Aqua.

For more information and images: <http://www.gsfc.nasa.gov/topstory/20020709crystalface.html>

Wallops Shorts.....

In the Field

A Wallops team is at the White Sands Missile Range in New Mexico preparing for the launch of a Terrier-Black Brant sounding rocket.

Personnel Actions

Magdi Said, Balloon Program Office, Aerospace Engineer, was promoted, July 14.

West Virginia Students Visit Wallops



Photo courtesy of Chuck Brodell

Students from Mason-Dixon Elementary, Blacksville, WV, visited Wallops on July 19 to put the final touches on a Space Experiment Module experiment. Each classroom from the school is conducting an experiment on static electricity in space. In addition to the Space Shuttle experiment, a mirror experiment also will be flown in the nose cone of the Student Experiment Module aboard an Orion sounding rocket in June 2003.

Director's All Hands

Employees are invited to view the next Director's All Hands Meeting on Tuesday, July 23 at 9 a.m. on Wallops TV Channel 6. Questions may be phoned in to x66-8471.

Center Director, Al Diaz will open with remarks that will be followed by an informative overview from Wentworth Denoon, Director of the Office of Systems Safety and Mission Assurance

Supervisory Feedback

The Employee Supervisory Feedback Survey is on line and open for your input through August 9.

Take a few minutes to give your supervisor some valuable feedback on their management skills at <http://that.gsfc.nasa.gov/survey/>

For more information prior to the survey opening, go to <http://ohr.gsfc.nasa.gov/performance/home.htm> or contact Christina Reed on x66-3279.

NASA Wallops Education Workshops Scheduled in August

Educators looking for up-to-date materials to use with their students are invited to participate in a series of workshops being offered by the Educator Resource Center at NASA Wallops Flight Facility.

Home school instructors, scout leaders and school educators are welcome to attend the free workshops. For further information or to register for any of the following workshops call DeAnna Shreves on x1148.

Mission Geography

August 9, 11 a.m.

This workshop provides an overview of the Mission Geography website and CD-ROM. Topics will cover answers to questions such as "Why do we study the Earth from Space?" to "What is happening to the Aral Sea?" Teachers will receive the Mission Geography CD-ROM and several satellite images. Audience: Teachers for kindergarten and up Time: 1 hour

Space Experiment Module

August 23, 11 a.m.

Learn how to turn your students into real scientists. Teachers will learn how to send their student's project into space on-board the Space Shuttle. Information will be included on how to submit a proposal to the SEM program and how to prepare your materials for a SEM flight. Don't miss out on this one of a kind opportunity! Audience: Teachers for kindergarten and up Time: 1 hour

Exploring the Moon

August 29, 8 a.m.

All about the Moon! Upon completing of this workshop, teachers will receive their NASA Meteorite Certification. Certified teachers are allowed to borrow an actual lunar sample from NASA for use in their classrooms. Teachers also will receive the Exploring the Moon educator guide. Reserve a spot for this workshop by August 22. Audience: 5th – 12th grade teachers Time: 3 hours

Exploring Meteorite Mysteries

August 29, 1 p.m.

Explore the fascinating world of meteorites. Upon completion of this workshop teachers will receive their NASA Meteorite Certification. Certified teachers are allowed to borrow an actual meteorite sample from NASA for use in their classrooms. Teachers also will receive the Exploring Meteorite Mysteries educator guide. Reserve a space in this workshop by August 22. Audience: 5th – 12th grade teachers Time: 3 hours

The Educator Resource Center is located at the NASA Visitor Center and is Tuesday through Saturday during August. All materials are free.

So what exactly is a hurricane?

*A hurricane is the most severe category of tropical cyclone. Tropical cyclones are low-pressure systems that have thunderstorm activity and rotate counter-clockwise.

*A tropical cyclone that has winds of 38 mph or less is called a tropical depression.

*When the tropical cyclone's winds reach 39-73 mph, it is called a tropical storm.

*When the winds exceed 73 mph, the storm is considered to be a hurricane. The Saffir-Simpson Hurricane Scale defines hurricane strength by categories.

*A Category 1 storm is the weakest (winds 74-95 mph); a Category 5 hurricane is the strongest (winds greater than 155 mph). The category of the storm does not necessarily relate directly to the damage it will inflict.

*Lower category storms, and even tropical storms, can cause substantial damage depending on what other weather features they interact with, where they strike and how slowly they move.

Category 1 - Winds 74-95 mph

Damage: Mainly to trees, unanchored mobile homes and boats.

Category 2 - Winds 96-110 mph

Damage: Considerable amount to trees, some roofs, minor building damage.

Category 3 - Winds 111-130 mph

Destruction of large trees, some structural damage inland, damage to small buildings on coast.

Category 4 - Winds 131-155 mph

Major damage to lower floors and buildings near coast, extensive structural and roof damage inland.

Category 5 - Winds above 155 mph

Destruction of many roofs, residences and industries; many small buildings blown over or away.

Lunch N Learn

The Employee Assistance Program (EAP) will present a Lunch N Learn on July 23 in the Williamsburg Room, Building E-2 between 11:30 a.m. and 12:30 p.m. The topic this month is Changes and Transitions.

House for Rent

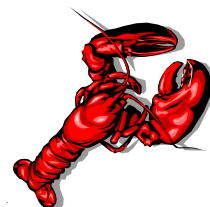
The house is located in the Historic Town of Accomac, Va. at 23410 Front St. It may be rented as a residence and/or office. It has a high efficiency heating and a/c system and rents for \$525 per month (unfurnished) or for \$675 (furnished). Call for details to (757) 623-8855 and leave a message or e.mail: kmaier@pinn.net

Lobster Fest

August 23

6 p.m.

Building F-3



Salad, corn-on-the-cob, baked potato, hush puppies, dessert, iced tea.

\$15 per person. Only 60 tickets will be sold on a first come, first served basis.

In case of bad weather for catching lobsters, steamed shrimp will be served. Sponsored by WEMA and the Morale Activities Committee.

NASA Visitor Center August Events

August 3 and 24

"Model Rocket Launch"

A model rocket launch will be held at 1 p.m. Models of various rockets will be launched. Model rocketeers are invited to bring their own rockets and launch them. The launch will be canceled if it is raining or winds exceed 18 mph.

Saturdays and Sundays

"Puppets in Space"

"Puppets in Space", a 10-minute puppet show, will be presented at 11 a.m. on Saturdays and Sundays. Puppet astronauts and Sam the monkey will explore space flight, including the space suit. An eight-minute version of the film "Astrosmites" follows the puppet show.

Sundays

"Humans in Space"

"Humans in Space" is the subject of a 1 p.m. program for children of all ages. The 30-minute program looks at living and working in space, including a review of the astronauts' culinary delights and their wardrobe.

Daily

"Space Ace"

Children ages 5-10 years can earn a "Space Ace" certificate and a lithograph during their Visitor Center experience by completing an activity sheet.

The Visitor Center, part of the Robert L. Krieger Education Complex, is open daily from 10 a.m. to 4 p.m. through Labor Day. Admission to all Visitor Center programs is free.

For further information, call x2298 or visit the VC site at: <http://www.wff.nasa.gov/vc>

Inside Wallops is an official publication of Goddard Space Flight Center and is published by the Wallops Office of Public Affairs, Extension 1584, in the interest of Wallops employees. Recent and past issues of *Inside Wallops* also may be found on the NASA Wallops Flight Facility homepage: www.wff.nasa.gov

Editor

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